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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/981,289A

DATE: 08/20/2002 P.6
TIME: 12:55:53

Input Set : A:\PTO_VSK.txt

Output Set: N:\CRF4\08202002\I981289A.raw

3 <110> APPLICANT: Dahiyat, Bassil I.
4 Filikov, Anton
6 <120> TITLE OF INVENTION: DESIGN AND DISCOVERY OF PROTEIN BASED TNF-ALPHA FOR THE
TREATMENT OF TNF-

7 ALPHA RELATED DISORDERS
9 <130> FILE REFERENCE: A-68990-3/RFT/RMS/RMK
11 <140> CURRENT APPLICATION NUMBER: US 09/981,289A
12 <141> CURRENT FILING DATE: 2001-10-15
14 <150> PRIOR APPLICATION NUMBER: US 60/186,427
15 <151> PRIOR FILING DATE: 2000-03-02
17 <150> PRIOR APPLICATION NUMBER: US 09/945,150
18 <151> PRIOR FILING DATE: 2001-08-31
20 <150> PRIOR APPLICATION NUMBER: US 09/798,789
21 <151> PRIOR FILING DATE: 2001-03-02
23 <160> NUMBER OF SEQ ID NOS: 30
25 <170> SOFTWARE: PatentIn version 3.1
27 <210> SEQ ID NO: 1
28 <211> LENGTH: 495
29 <212> TYPE: DNA
30 <213> ORGANISM: Homo sapiens
32 <400> SEQUENCE: 1
33 atgcaccacc accaccacca cgtacgctcc tctcccgca ctccgtccga caaacccgta 60
35 gctcacgtag tagctaacc gcaggctgaa ggtagctgc agtggctgaa ccgccgcgt 120
37 aacgctctgc tggttaacgg ttagaactg cgcgacaacc agctggtagt accgtccgaa 180
39 ggtctgtacc tgatctactc ccaggctactg ttcaaaggctc aggggtgtcc gtccactcac 240
41 gtactgtgta ctcacactat ctcccgcatc gctgtatcct accagactaa agtaaaccctg 300
43 ctgtccgcta tcaaatcccc gtgtcagcgc gaaactccgg aaggtgctga agctaaaccg 360
45 tggtagaac cgatctacct ggggtgtgta ttccagctgg aaaaagggtga ccgcctgtcc 420
47 gtcgaaatca accgcccgga ctacctggac ttgctgtaat ccggtcaggt atacttcggt 480
49 atcatcgctc tgtga 495
52 <210> SEQ ID NO: 2
53 <211> LENGTH: 164
54 <212> TYPE: PRT
55 <213> ORGANISM: Homo sapiens
57 <220> FEATURE:
58 <221> NAME/KEY: mat_peptide
59 <222> LOCATION: (8)..()
60 <223> OTHER INFORMATION:
62 <400> SEQUENCE: 2
64 Met His His His His His Val Arg Ser Ser Ser Arg Thr Pro Ser
65 -5 -1 1 5
68 Asp Lys Pro Val Ala His Val Val Ala Asn Pro Gln Ala Glu Gly Gln
69 10 15 20 25
72 Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala Leu Leu Ala Asn Gly Val

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```

73          30          35          40
76 Glu Leu Arg Asp Asn Gln Leu Val Val Pro Ser Glu Gly Leu Tyr Leu
77          45          50          55
80 Ile Tyr Ser Gln Val Leu Phe Lys Gly Gln Gly Cys Pro Ser Thr His
81          60          65          70
84 Val Leu Leu Thr His Thr Ile Ser Arg Ile Ala Val Ser Tyr Gln Thr
85          75          80          85
88 Lys Val Asn Leu Leu Ser Ala Ile Lys Ser Pro Cys Gln Arg Glu Thr
89 90          95          100          105
92 Pro Glu Gly Ala Glu Ala Lys Pro Trp Tyr Glu Pro Ile Tyr Leu Gly
93          110          115          120
96 Gly Val Phe Gln Leu Glu Lys Gly Asp Arg Leu Ser Ala Glu Ile Asn
97          125          130          135
100 Arg Pro Asp Tyr Leu Asp Phe Ala Glu Ser Gly Gln Val Tyr Phe Gly
101          140          145          150
104 Ile Ile Ala Leu
105          155
108 <210> SEQ ID NO: 3
109 <211> LENGTH: 43
110 <212> TYPE: PRT
111 <213> ORGANISM: Homo sapiens
113 <400> SEQUENCE: 3
115 Asp Gln Asp Lys Ile Glu Ala Leu Ser Ser Lys Val Gln Gln Leu Glu
116 1          5          10          15
119 Arg Ser Ile Gly Leu Lys Asp Leu Ala Met Ala Asp Leu Glu Gln Lys
120          20          25          30
123 Val Leu Glu Met Glu Ala Ser Thr Tyr Asp Gly
124          35          40
127 <210> SEQ ID NO: 4
128 <211> LENGTH: 43
129 <212> TYPE: PRT
130 <213> ORGANISM: Homo sapiens
132 <400> SEQUENCE: 4
134 Val Ala Arg Asn Thr Gly Leu Leu Glu Ser Gln Leu Ser Arg His Asp
135 1          5          10          15
138 Gln Met Leu Ser Val His Asp Ile Arg Leu Ala Asp Met Asp Leu Arg
139          20          25          30
142 Phe Gln Val Leu Glu Thr Ala Ser Tyr Asn Gly
143          35          40
146 <210> SEQ ID NO: 5
147 <211> LENGTH: 43
148 <212> TYPE: PRT
149 <213> ORGANISM: Homo sapiens
151 <400> SEQUENCE: 5
153 Asn Asp Gln Arg Leu Ala Val Leu Glu Glu Glu Thr Asn Lys His Asp
154 1          5          10          15
157 Thr His Ile Asn Ile His Lys Ala Gln Leu Ser Lys Asn Glu Glu Arg
158          20          25          30
161 Phe Lys Leu Leu Glu Gly Thr Cys Tyr Asn Gly

```

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162          35          40
165 <210> SEQ ID NO: 6
166 <211> LENGTH: 43
167 <212> TYPE: PRT
168 <213> ORGANISM: Homo sapiens
170 <400> SEQUENCE: 6
172 Asp Arg Glu Arg Ile Leu Ser Leu Glu Gln Arg Val Val Glu Leu Gln
173 1          5          10          15
176 Gln Thr Leu Ala Gln Lys Asp Gln Ala Leu Gly Lys Leu Glu Gln Ser
177          20          25          30
180 Leu Arg Leu Met Glu Glu Ala Ser Phe Asp Gly
181          35          40
184 <210> SEQ ID NO: 7
185 <211> LENGTH: 43
186 <212> TYPE: PRT
187 <213> ORGANISM: Homo sapiens
189 <400> SEQUENCE: 7
191 Gln Asp His Gln Ile Arg Glu Leu Thr Ala Lys Met Glu Thr Gln Ser
192 1          5          10          15
195 Met Tyr Val Ser Glu Leu Lys Arg Thr Ile Arg Thr Leu Glu Asp Lys
196          20          25          30
199 Val Ala Glu Ile Glu Ala Gln Gln Cys Asn Gly
200          35          40
203 <210> SEQ ID NO: 8
204 <211> LENGTH: 27
205 <212> TYPE: PRT
206 <213> ORGANISM: Homo sapiens
208 <400> SEQUENCE: 8
210 Cys Ala Leu Val Ser Arg Gln Arg Gln Glu Leu Gln Glu Leu Arg Arg
211 1          5          10          15
214 Glu Leu Glu Glu Leu Ser Val Gly Ser Asp Gly
215          20          25
218 <210> SEQ ID NO: 9
219 <211> LENGTH: 157
220 <212> TYPE: PRT
221 <213> ORGANISM: Artificial Sequence
223 <220> FEATURE:
224 <223> OTHER INFORMATION: synthetic
226 <400> SEQUENCE: 9
228 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val
229 1          5          10          15
232 Val Ala Asn Pro Arg Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
233          20          25          30
236 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
237          35          40          45
240 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
241          50          55          60
244 Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
245 65          70          75          80

```

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```

248 Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
249           85           90           95
252 Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
253           100          105          110
256 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
257           115          120          125
260 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
261           130          135          140
264 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
265 145           150           155

```

```

268 <210> SEQ ID NO: 10
269 <211> LENGTH: 157
270 <212> TYPE: PRT
271 <213> ORGANISM: Artificial Sequence
273 <220> FEATURE:
274 <223> OTHER INFORMATION: synthetic
276 <400> SEQUENCE: 10

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```

278 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val
279 1           5           10           15
282 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asp Arg Arg
283           20           25           30
286 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
287           35           40           45
290 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
291           50           55           60
294 Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
295 65           70           75           80
298 Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
299           85           90           95
302 Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
303           100          105          110
306 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
307           115          120          125
310 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
311           130          135          140
314 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
315 145           150           155

```

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318 <210> SEQ ID NO: 11
319 <211> LENGTH: 157
320 <212> TYPE: PRT
321 <213> ORGANISM: Artificial Sequence
323 <220> FEATURE:
324 <223> OTHER INFORMATION: synthetic]
326 <220> FEATURE:
327 <221> NAME/KEY: MISC_FEATURE
328 <222> LOCATION: (31)..(31)
329 <223> OTHER INFORMATION: "Xaa" at position 31 can be Ile, Asp, or Glu
332 <400> SEQUENCE: 11
334 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val

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Input Set : A:\PTO_VSK.txt

Output Set: N:\CRF4\08202002\I981289A.raw

```

335 1          5          10          15
W--> 338 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Xaa Arg
339          20          25          30
342 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
343          35          40          45
346 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
347          50          55          60
350 Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
351 65          70          75          80
354 Ser Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
355          85          90          95
358 Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
359          100         105         110
362 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
363          115         120         125
366 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
367          130         135         140
370 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
371 145         150         155
374 <210> SEQ ID NO: 12
375 <211> LENGTH: 157
376 <212> TYPE: PRT
377 <213> ORGANISM: Artificial Sequence
379 <220> FEATURE:
380 <223> OTHER INFORMATION: synthetic
382 <220> FEATURE:
383 <221> NAME/KEY: MISC_FEATURE
384 <222> LOCATION: (32)..(32)
385 <223> OTHER INFORMATION: "Xaa" at position 32 can be Asp, Glu or Ser
388 <400> SEQUENCE: 12
390 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val
391 1          5          10          15
W--> 394 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Xaa
395          20          25          30
398 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
399          35          40          45
402 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
403          50          55          60
406 Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
407 65          70          75          80
410 Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
411          85          90          95
414 Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
415          100         105         110
418 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
419          115         120         125
422 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
423          130         135         140
426 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

```

RAW SEQUENCE LISTING ERROR SUMMARY
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:11; Xaa Pos. 31
Seq#:12; Xaa Pos. 32
Seq#:15; Xaa Pos. 65
Seq#:16; Xaa Pos. 66
Seq#:17; Xaa Pos. 67
Seq#:18; Xaa Pos. 111
Seq#:19; Xaa Pos. 112
Seq#:20; Xaa Pos. 115
Seq#:21; Xaa Pos. 140
Seq#:22; Xaa Pos. 143
Seq#:24; Xaa Pos. 145
Seq#:25; Xaa Pos. 146

Invalid Line Length:

The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1; Line(s) 6

VERIFICATION SUMMARY

DATE: 08/20/2002

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Input Set : A:\PTO_VSK.txt

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L:338 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:16
L:394 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:16
L:563 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:64
L:619 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:64
L:675 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:64
L:739 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:96
L:795 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:96
L:856 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:112
L:916 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:128
L:972 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:128
L:1083 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24 after pos.:144
L:1139 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25 after pos.:144